

WHAT IS CLAIMED IS:

1. A brake noise detection device comprising:

a vehicle wheel speed sensor that outputs an output signal in accordance with a rotation speed of a vehicle wheel;

a noise frequency identification portion that identifies a frequency component that corresponds to brake noise based on the output signal of the vehicle wheel speed sensor; and

a noise detection portion that determines that brake noise is being generated when the frequency component identified by the noise frequency identification portion is equal to or more than a predetermined value.

2. The brake noise detection device according to claim 1, wherein

the vehicle wheel speed sensor includes a detected portion configured from a plurality of detected bodies which are disposed on at least one of an external circumference surface and a rotating surface of a rotating body that rotates integrally with the vehicle wheel, the detected bodies being disposed at equal distances apart in a circumferential direction of the rotating body; and a detection portion that is disposed so as to face the detected portion with a distance of separation, and

the detection portion outputs a signal in accordance with a relative movement speed of the detected portion and the detection portion.

3. The brake noise detection device according to claim 2, wherein

the plurality of detected bodies in the detected portion are provided as between five hundred to one thousand detected bodies that are disposed at equal distances of separation.

4. The brake noise detection device according to claim 1, wherein

the noise frequency identification portion includes a vehicle wheel speed calculation portion which calculates a rotation speed of the vehicle wheel based upon the output signal of the vehicle wheel speed sensor, and which outputs a rotation speed signal based upon the calculated rotation speed; and a frequency calculation portion that calculates a frequency spectrum of the vehicle wheel speed by performing fast Fourier transform for the rotation speed signal of the vehicle wheel.

5. The brake noise detection device according to claim 2, wherein

the noise frequency identification portion includes a vehicle wheel speed calculation portion which

calculates a rotation speed of the vehicle wheel based upon the output signal of the vehicle wheel speed sensor, and which outputs a rotation speed signal based upon the calculated rotation speed; and a frequency calculation portion that calculates a frequency spectrum of the vehicle wheel speed by performing fast Fourier transform for the rotation speed signal of the vehicle wheel.

6. The brake noise detection device according to claim 3, wherein

the noise frequency identification portion includes a vehicle wheel speed calculation portion which calculates a rotation speed of the vehicle wheel based upon the output signal of the vehicle wheel speed sensor, and which outputs a rotation speed signal based upon the calculated rotation speed; and a frequency calculation portion that calculates a frequency spectrum of the vehicle wheel speed by performing fast Fourier transform for the rotation speed signal of the vehicle wheel.

7. The brake noise detection device according to claim 1, wherein

the noise frequency identification portion includes a frequency spectrum calculation portion that performs fast Fourier transform of the output signal of the vehicle wheel speed sensor; and a portion that excludes a frequency component that corresponds to the

vehicle wheel speed from an output of the frequency spectrum calculation portion.

8. The brake noise detection device according to claim 2, wherein

the noise frequency identification portion includes a frequency spectrum calculation portion that performs fast Fourier transform of the output signal of the vehicle wheel speed sensor; and a portion that excludes a frequency component that corresponds to the vehicle wheel speed from an output of the frequency spectrum calculation portion.

9. The brake noise detection device according to claim 3, wherein

the noise frequency identification portion includes a frequency spectrum calculation portion that performs fast Fourier transform of the output signal of the vehicle wheel speed sensor; and a portion that excludes a frequency component that corresponds to the vehicle wheel speed from an output of the frequency spectrum calculation portion.

10. The brake noise detection device according to claim 1, wherein

the vehicle wheel speed sensor is disposed
within a caliper.